



SPN3400

N-Channel Enhancement Mode MOSFET

DESCRIPTION

The SPN3400 is the N-Channel logic enhancement mode power field effect transistors are produced using high cell density , DMOS trench technology.

This high density process is especially tailored to minimize on-state resistance.

These devices are particularly suited for low voltage application such as cellular phone and notebook computer power management and other battery powered circuits, and low in-line power loss are needed in a very small outline surface mount package.

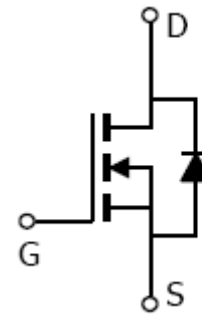
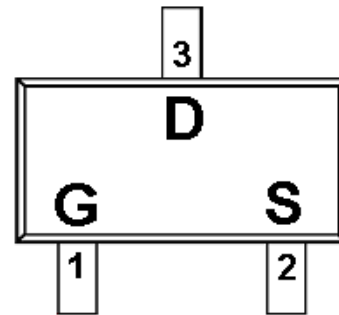
FEATURES

- ◆ 30V/5.4A, $R_{DS(ON)} = 38m\Omega @ V_{GS} = 10V$
- ◆ 30V/4.6A, $R_{DS(ON)} = 42m\Omega @ V_{GS} = 4.5V$
- ◆ 30V/3.8A, $R_{DS(ON)} = 55m\Omega @ V_{GS} = 2.5V$
- ◆ Super high density cell design for extremely low $R_{DS(ON)}$
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ SOT-23-3L package design

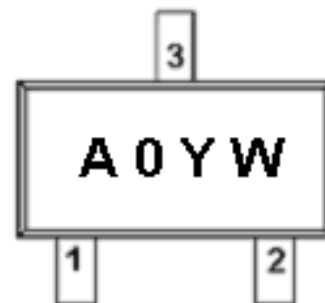
APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System
- DC/DC Converter
- Load Switch
- DSC
- LCD Display inverter

PIN CONFIGURATION(SOT-23-3L)



PART MARKING



Y : Year Code
W : Week Code



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PIN DESCRIPTION

Pin	Symbol	Description
1	G	Gate
2	S	Source
3	D	Drain

ORDERING INFORMATION

Part Number	Package	Part Marking
SPN3400S23RG	SOT-23-3L	A0YW
SPN3400S23RGB	SOT-23-3L	A0YW

- ※ Week Code : A ~ Z (1 ~ 26) ; a ~ z (27 ~ 52)
- ※ SPN3400S23RG : Tape Reel ; Pb – Free
- ※ SPN3400S23RGB : Tape Reel ; Pb – Free ; Halogen - Free

ABSOLUTE MAXIMUM RATINGS

(TA=25°C Unless otherwise noted)

Parameter	Symbol	Typical	Unit	
Drain-Source Voltage	V _{DSS}	30	V	
Gate –Source Voltage	V _{GSS}	±12	V	
Continuous Drain Current(T _J =150°C)	I _D	TA=25°C	4.5	A
		TA=70°C	3.5	
Pulsed Drain Current	I _{DM}	25	A	
Continuous Source Current(Diode Conduction)	I _S	1.7	A	
Power Dissipation	P _D	TA=25°C	2.0	W
		TA=70°C	1.3	
Operating Junction Temperature	T _J	150	°C	
Storage Temperature Range	T _{STG}	-55/150	°C	
Thermal Resistance-Junction to Ambient	R _{θJA}	90	°C/W	



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ELECTRICAL CHARACTERISTICS

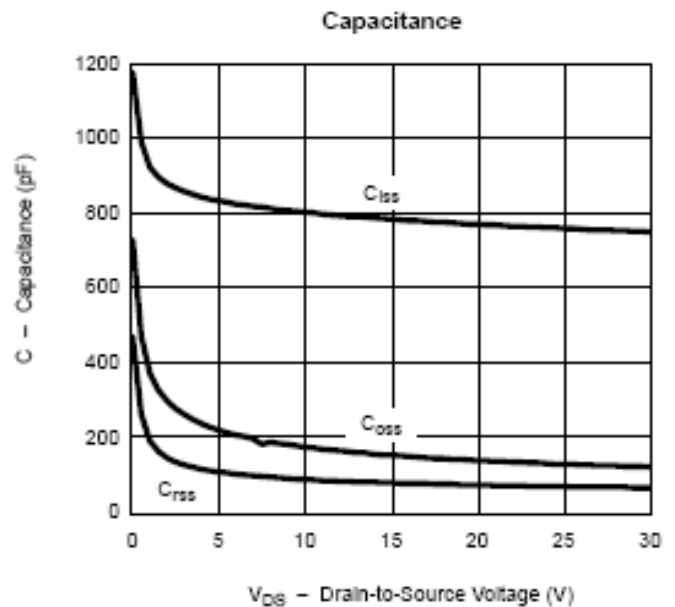
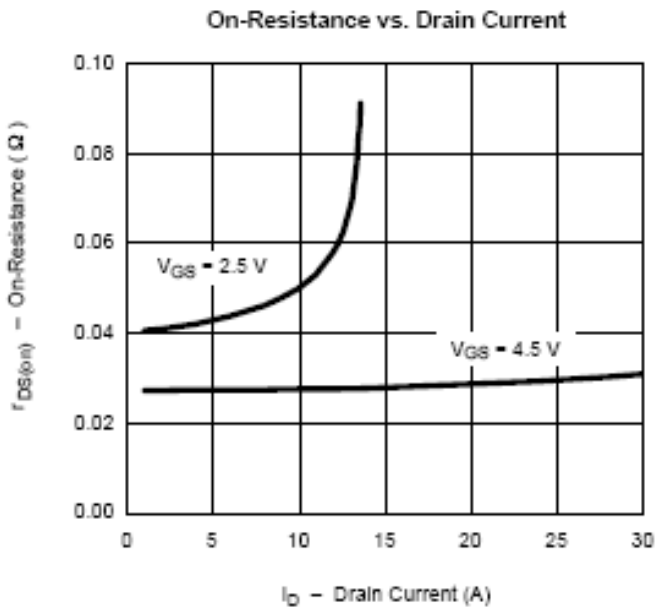
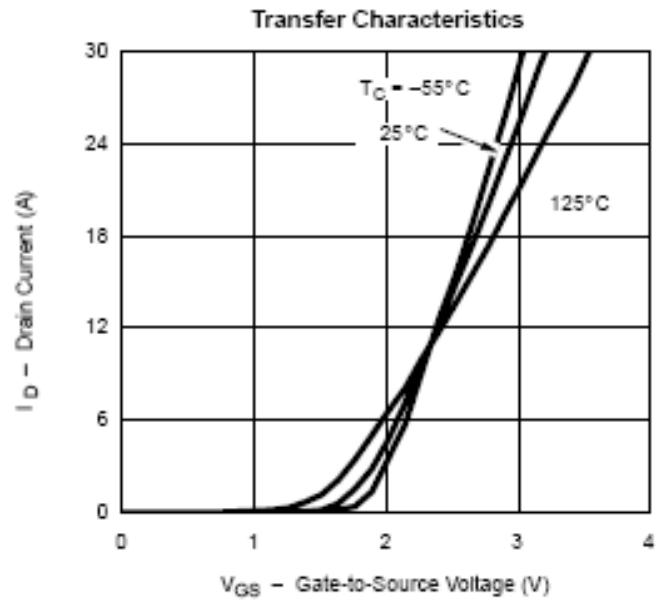
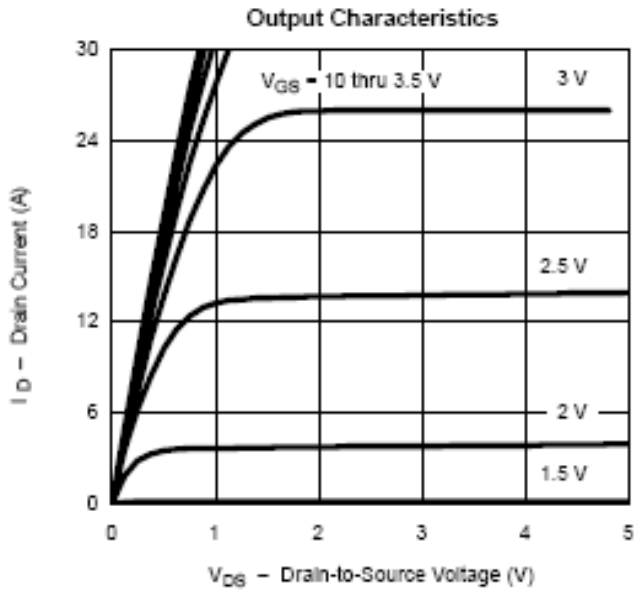
(TA=25°C Unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ	Max.	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250uA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250uA	0.8		1.6	
Gate Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±12V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =24V, V _{GS} =1.0V			1	uA
		V _{DS} =24V, V _{GS} =0.0V T _J =55°C			10	
On-State Drain Current	I _{D(on)}	V _{DS} ≥ 4.5V, V _{GS} =4.5V	10			A
Drain-Source On-Resistance	R _{DS(on)}	V _{GS} = 10V, I _D =5.4A		0.030	0.038	Ω
		V _{GS} = 4.5V, I _D =4.6A		0.034	0.042	
		V _{GS} = 2.5V, I _D =3.8A		0.040	0.055	
Forward Transconductance	g _{fs}	V _{DS} =4.5V, I _D =5.4A		12		S
Diode Forward Voltage	V _{SD}	I _S =1.7A, V _{GS} =0V		0.8	1.2	V
Dynamic						
Total Gate Charge	Q _g	V _{DS} =15V, V _{GS} =10V I _D =6.7A		10	18	nC
Gate-Source Charge	Q _{gs}			1.6		
Gate-Drain Charge	Q _{gd}			3.2		
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V f=1MHz		450		pF
Output Capacitance	C _{oss}			240		
Reverse Transfer Capacitance	C _{rss}			38		
Turn-On Time	t _{d(on)}	V _{DD} =15V, R _L =15Ω I _D =1.0A, V _{GEN} =10V R _G =6Ω		7	15	ns
	t _r			10	20	
Turn-Off Time	t _{d(off)}			20	40	
	t _f			11	20	



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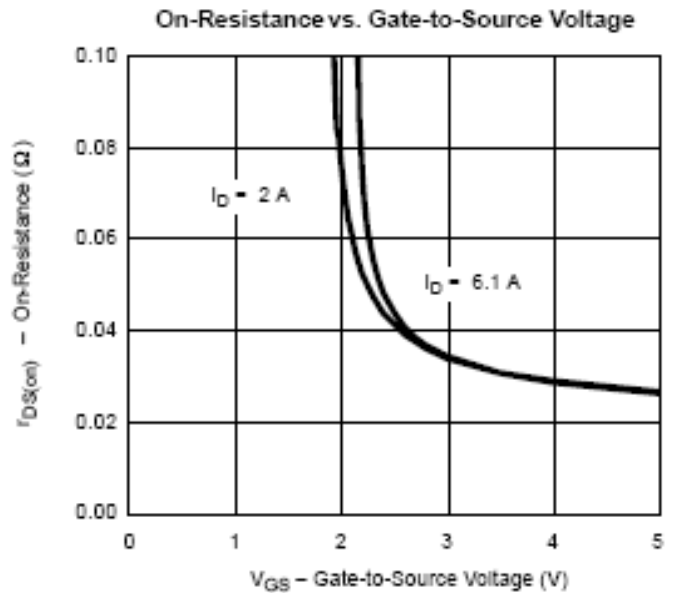
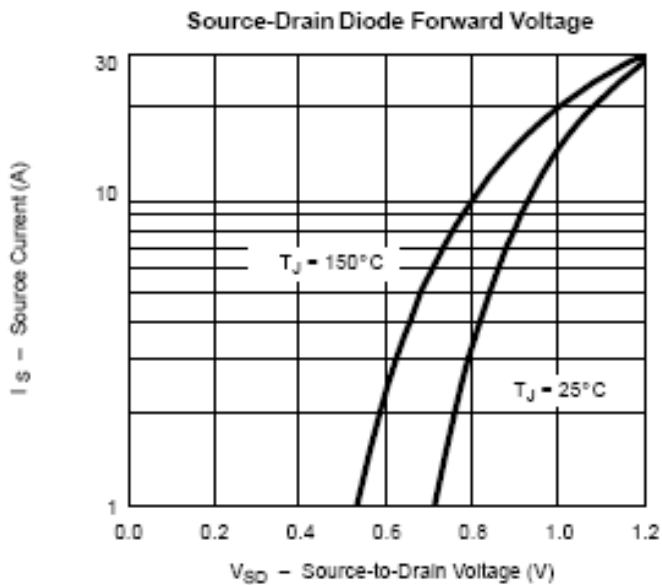
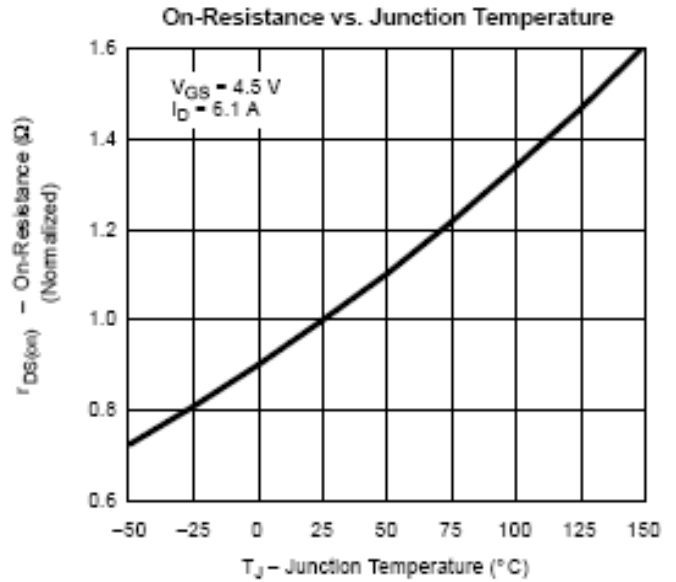
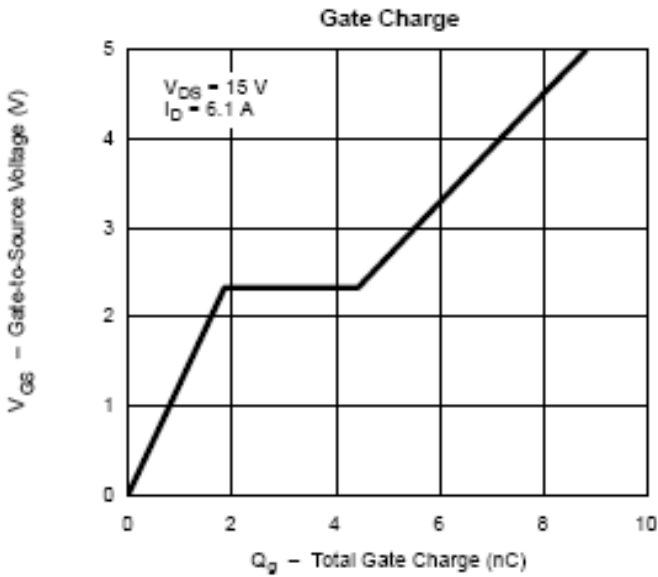
TYPICAL CHARACTERISTICS





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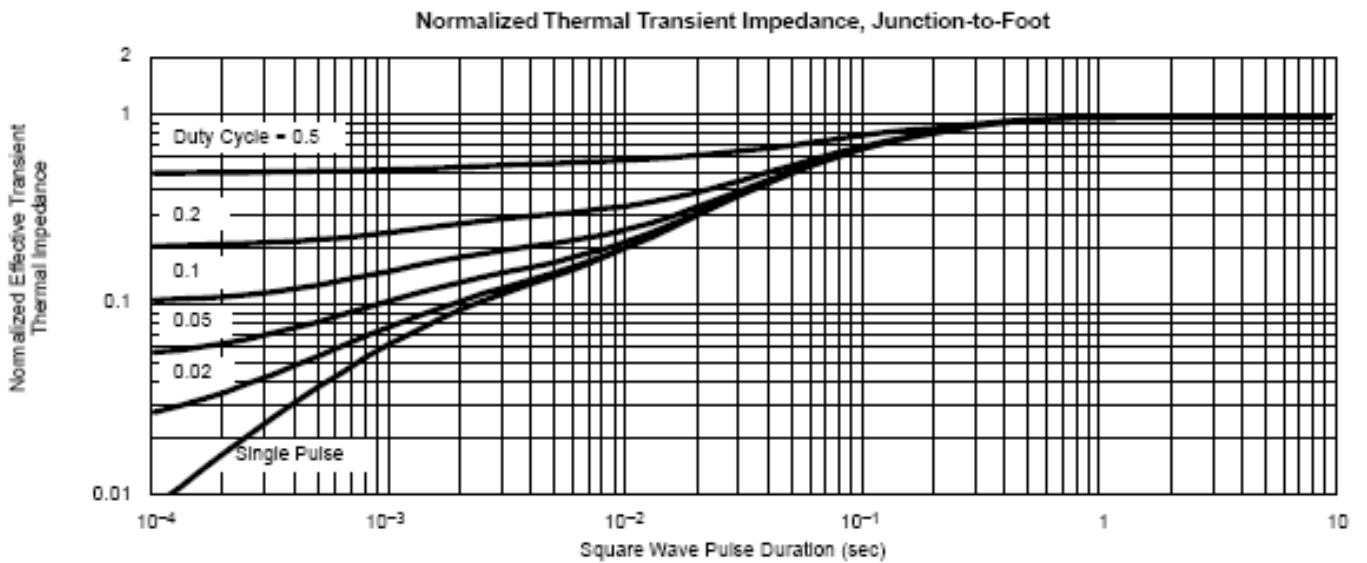
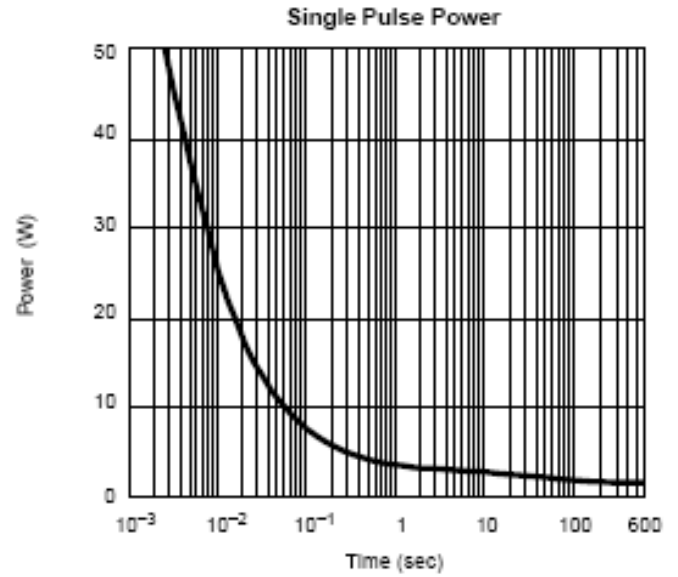
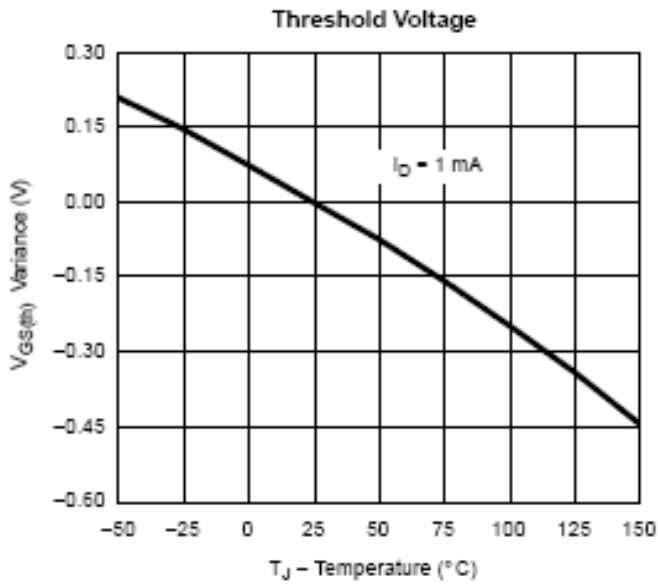
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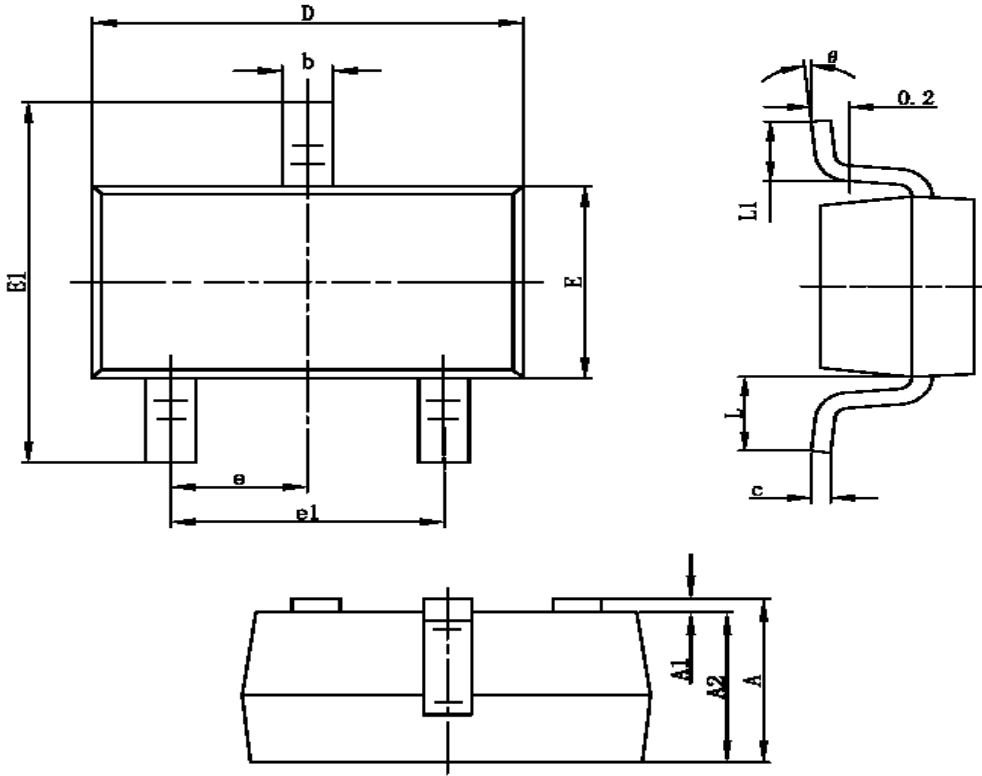




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SOT-23-3L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.400	0.012	0.016
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
theta	0°	8°	0°	8°



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